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## Pain: Perception or Introspection?

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Is feeling pain in a bodily location, say, in one's elbow, a form of *perception* or something that essentially involves *introspection*? Am I perceiving something in my elbow when I feel pain there? Or am I engaged in some form of introspection about my awareness of something there?

In popular culture or even among scientists, the term 'perception' is often used in a very broad sense to designate any kind of ongoing epistemic access to (or, some form of awareness of) *something* (anything) in real time. Used in this sense, the common practice of using expressions like 'pain perception' or 'perception of pain' (popular among pain scientists)<sup>1</sup> may be unobjectionable. Indeed, the term 'perception' in this broad sense may also be used to characterize introspection itself. Whatever ultimately the nature of introspection turns out to be, it is by definition a form of direct *first-person* access (subjective, from inside) to one's own *mental* states, processes, events, or to their mental features. In this minimal sense, it is something that may already be covered by the broad sense of 'perception' just mentioned. But there is a narrower sense of 'perception' with which 'introspection' is to be *contrasted*. In the narrower sense, perception is ongoing epistemic access to something that is *other* than one's own mental states or features. This is the familiar epistemic activity that occupies most of our ordinary waking lives when we see, hear, smell, taste, or touch something in or outside of our bodies. In this sense, perception is access to something *extra-mental* in the sense of being beyond our own mental states. This is typically access to worldly objects (including our own bodies), their physical properties, states or conditions. When I see a lemon in front of me, touch it, smell it, taste it, I am perceiving the lemon and its physical features, its color, shape, sounds it makes when I take a bite or tap on it, its texture, odor, taste, etc. In other words, in perception I am getting information about the physical objects in the environment surrounding me and my body, and this information is typically made available to me for recognition, identification, categorization, etc. — or more generally, for cognizing and further mental processing or motor action. In all this, and what is essential for the narrow sense of 'perception,' the mental activity is world-directed. In introspection, it is internally (mind) directed. This is not to deny that perception in the narrow sense and introspection can co-occur — or perhaps even always co-occur. Indeed, when I perceive the lemon in front of me, I may also be simultaneously attending to the way I sense or experience it. This is epistemic access to the peculiar *way* in which the

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<sup>1</sup> Just run a Google search with these expressions to see how popular and seemingly unavoidable their uses are.

lemon *feels* to me in seeing, touching, tasting, or sniffing it. I may be *introspectively* attending, in other words, to the very character (the phenomenology) of my perceptual experience of the lemon in the very act of *perceiving* it. The point, rather, is that perception (in the narrow sense) and introspection are different mental activities even when they co-occur. In this chapter, when I use 'perception' I will always mean it in the narrow sense.<sup>2</sup>

Returning to the opening question: is my feeling pain in my elbow a form of perception or something involving introspection? Given that perception and introspection may not be mutually exclusive and may co-occur, at the end of the day, we may answer the question by saying that it is both. We may also answer it by saying it is neither. But let us try to understand the question as asking what feeling a pain is *in the first place* (primarily, or perhaps, even essentially). A natural reaction to the question is to say something like the following:

Look, if I feel a pain in my elbow, I am clearly aware of *something in my elbow*. Whatever this is, it has a bodily location — it is *in my elbow*. Does it make sense to talk about a "thing" in my elbow as something other than a physical condition of my elbow? Does it make sense to talk about a mental condition or experiential condition of elbows? Can a mental item be literally located in elbows? Add to this the fact that when we feel pain in bodily parts, most often there is some kind of physical insult (actual or impending), disturbance or disorder located roughly in or around those bodily parts, it becomes clear that the intuitively correct answers to these questions are in the negative. This rules out that my feeling pain in my elbow is a form of introspection and makes a compelling case for the claim that it is a form of perception (interoception) of a physical/objective condition of my elbow — to the effect that there is something physically wrong with my elbow. Feeling pain in a bodily location, in other words, is *perceiving* some kind of physical disorder or disturbance or damage (actual or potential) in, on, or around, those bodily locations.

This view has come to be known as the Perceptual/Representational Theory (PRT) of pain, and there are various versions of it in the literature.<sup>3</sup> PRT has many virtues. It does justice to the

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<sup>2</sup> Perception in the narrow sense is sometimes divided into *exteroception* and *interoception*. The latter is typically meant to apply only to the perception of one's own bodily states, position, or its various physiological or regulatory conditions. The former is perception of worldly conditions beyond one's skin. See, for instance, A.D. Craig (2003). Also, in what follows, when I talk about perception and perceptual experiences, I will have in mind conscious perception and conscious experiences. I don't, of course, deny that there may be non-conscious perceptual states. For more discussion, see Chapter 18.

<sup>3</sup> For perceptualist views, see Armstrong (1962, 1968), Pitcher (1970, 1971), Hill (2006, 2009, this volume). For representationalist views, see (among others) Harman (1990), Dretske (1981, 1995), Byrne and Hilbert (1998, 2003), Byrne and Tye (2006), Tye (1995, 1996a, 1997, 2005a, 2005b), Bain (2003, 2007, 2013, this volume), O'Sullivan and Schroer (2012), Cutter (this volume). Perceptualists and representationalists are natural allies but the views, strictly speaking, don't entail each other. The kind of representationalism I associate with PRT is sometimes known in the literature as strong representationalism usually promoted as a metaphysical thesis about the nature of perceptual phenomenology. Its main thesis is that perceptual phenomenology is entirely determined by the (non-conceptual) wide representational content of experiences. The differences between perceptualists and

intuition that in feeling pain in body parts, we are often getting very useful information about the physical condition of these parts. Thus, just like other perceptual modalities, pain perception is epistemic access to one's physical environment — in this particular case, to one's own body and its states. This access has immediate and often almost hard-wired motivational consequences about what to do with this information: move (or stop moving, as the case may be) the body or body parts in certain ways. In this respect, it resembles smell, taste and touch more than vision and hearing. Thus the fact that pain has a very pronounced affective-motivational aspect (pains feel bad, unpleasant and almost always motivates) may not take away from its being a perceptual phenomenon (sensory-discriminative). When viewed this way, it makes little sense to think of feeling pain in a bodily part as a form of introspection: what would be the point of accessing one's mental states, experiences, feelings, sensations, when the important issues lie with what is happening to the body and what to do about it? Thus, there is a lot going for a view that treats feeling pain in a body part as a form of perception — especially when combined with an account of the affective-motivational aspect of pains.

Nevertheless, there are genuine puzzles and problems with PRT whose appreciation points in the opposite direction. PRT naturally suggests that when we attribute pains to body parts, we attribute (believe and report the existence of) some objective/physical condition of those body parts — for ease of use, let us abbreviate this physical condition of body parts as D (actual or impending physical *dis*order, *dist*urbance, *dam*age, or some such). D is the *object* of our perception — what it is that we perceive. The nature of D may differ from case to case, but in all cases it is meant by perceptualists to be an objective condition of bodily parts. When we perceive a pain in a bodily location, according to PRT, we perceive D. Are pains identical to D, then? Is the pain in my elbow the same thing as the swollen/bruised condition of my elbow — same thing as whatever physical damage exists there?

The answer is: No. We understand the physical disorder (D) in my elbow to be the *cause* of my pain there — if there is indeed some kind of disorder there. But we don't identify pain with physical disorder. (In general: for any  $x$  and  $y$ , if  $x$  is a cause of  $y$ ,  $x \neq y$ .) This could easily be seen when you reflect on the following scenario. Suppose there is in fact no tissue damage or any kind of physical disorder or disturbance in my elbow. I feel pain in there because I have a pinched nerve in the relevant part of my spine. This would not make my belief/report that there is a pain in my elbow incorrect. It would still be true that there is a pain in my elbow if I truly happen to feel a pain there. Compare a similar scenario in a genuinely perceptual case: if I come to believe that there is an apple in front of me on the basis of my visual experience (if I seem to see an apple and report the presence of an apple on that basis), when in fact there was no apple and I was simply hallucinating, my belief/report would be *incorrect* and my visual experience would be non-veridical, hallucinatory. But no such thing happens in cases where we *feel pain in a bodily part in the absence of any physical disorder in those parts*. In such cases, we still continue to *correctly* judge that we have pain *in those bodily parts*. Thus, we don't have pain hallucinations.

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representationalists won't matter for the purposes of this entry — but see Aydede (2009a/b) for a detailed critical discussion of these views and how they are related.

This is not simply a result of how we *ordinarily* think and talk about pains. Pain scientists and clinicians themselves have been insisting on this point for decades. Here is the IASP definition of 'pain' with a profoundly anti-perceptualist note added:<sup>4</sup>

**Pain:** An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.

*Note:* ... Pain is always subjective. Each individual learns the application of the word through experiences related to injury in early life . . . It is unquestionably a sensation in a part or parts of the body . . . Many people report pain in the absence of tissue damage or any likely pathological cause . . . There is no way to distinguish their experience from that due to tissue damage if we take the subjective report. If they regard their experience as pain and if they report it in the same ways as pain caused by tissue damage, it should be accepted as pain. This definition avoids tying pain to the stimulus. Activity induced in the nociceptor and nociceptive pathways by a noxious stimulus is not pain, which is always a psychological state, even though we may well appreciate that pain most often has a proximate physical cause.

It follows, *a fortiori*, that any physical or objective condition of tissue or body parts is not pain either, even though "we may well appreciate that pain most often has" such a condition as its (distal?) physical cause.<sup>5</sup>

Despite the ordinary or clinical practice of locating pains in body parts, the dominant ordinary opinion (not *just* the scientific opinion) is that pains are subjective experiences. As experiences they don't admit an appearance/reality distinction: this is why there are no pain hallucinations. In having a pain in my elbow, I am essentially having a pain experience that nevertheless manages to say something about my elbow. If this is correct, then coming to know that one is in pain or is feeling pain in a bodily part is necessarily coming to know that one is having a (mental, what else?) experience. But this is to engage in introspection — one is having epistemic access to one's experience — a paradigm mental occurrence. Note that there is no parallel in cases like vision: if, on the basis of my visual experience, I come to know that there is

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<sup>4</sup> First published in 1979 in IASP's official journal, *Pain*, and endorsed again in 1986, 1994 and 2011. The definition, along with other pain related terms, is now available through the web site of IASP: <http://www.iasp-pain.org/Taxonomy?navItemNumber=576#Pain>. For further discussion of the IASP definition of pain, see Chapter 33 in this volume by Andrew Wright, and Aydede (forthcoming-c).

<sup>5</sup> Interestingly, almost all perceptual theorists also agree with this point — except Chris Hill (2005, 2009, this volume) who explicitly identifies pains with disordered conditions of bodily parts, although he also claims that the common concept of pain is confusing two distinct notions of pain. With the exception of Hill, all perceptualists claim that pains are experiences, not physical disorders or the like, but these experiences, they say, are nevertheless perceptual. They think that our ordinary (or scientific, for that matter) ways of talking about pains as things that are locatable in body parts are just confused. Perceptualists generally tend to give an intentionalist reading of pain attributing practices as pain locations being merely *intentional* locations within the representational content of pain experiences — see below for more discussion. See Aydede (2009a) for a more detailed discussion.

an apple in front of me, then this knowledge (that there is an apple in front of me) is perceptual, not introspective — it is epistemic access to the extra-mental (worldly) reality. Of course, I may *also* come to know that I am having a visual experience about an apple. This piece of knowledge would be introspective, yes, but this is extra, something in addition to my perceptual knowledge.

How are we to answer our opening question then? My own view is that there is no serious alternative to identifying pains with experiences. This fact is acknowledged even by most perceptualist themselves: on their view, pains are experiences — but, they say, these experiences are perceptual. If pains are experiences, however, our epistemic access to them is, by definition, introspective. For knowledge of one's own pain is knowledge of one's own experience, and this is introspective knowledge.

Unfortunately, this settles very little. Deep puzzles remain. If pains are subjective experiences, it is not at all clear what it is that we are doing when we attribute pains to bodily parts. When I feel a sharp pain in my elbow, does it make sense to talk about introspecting a mental item in my elbow?

Compare the situation to seeing the apple in front of me as round. On the basis of my visual experience I make a perceptual judgment "*this* is round," where 'this' refers to the apple. I am attributing roundness to the apple in front of me. The roundness of the apple won't be affected when I stop seeing it. Not so with the pain *in my elbow*. Seeing roundness is perceptual. Awareness of one's seeing roundness is introspective. In principle, it seems, one can have the former without having the latter: one can see the roundness of an apple without being introspectively aware that one is doing so. The puzzle is that this distinction seems to collapse in the case of feeling a pain in my elbow. The act of locating pain in a bodily location (in the extra-mental space) argues for an understanding of pains as perceptual, but the robust resistance of identifying pains with anything physical in those locations (thus making located pains awareness-dependent) exerts pressure for an understanding of pains as introspective. If we follow the dominant understanding of pains as subjective experiences, as I think we should, we need to find a way to make the following claim intelligible:

(P) When I feel a pain in my elbow, the pain in my elbow is both literally *located in my elbow* and *mental* so that the proprietary epistemic access to it is introspective, rather than perceptual.

It is the pessimism about making (P) intelligible in naturalistic terms that has kept philosophers busy and driven away from non-perceptualist and non-representationalist views of pain for fear of quantifying over irreducibly mental objects (sense-data) or mental/phenomenal qualities (qualia).<sup>6</sup>

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<sup>6</sup> George W. Pitcher, an early and influential perceptual theorist, is explicit: "The obstacles [to a direct realist version of the perceptual view of pain] are some features of pain that seem to rule out [such a view], since they seem to demand either (a) that pains be mental (or at any rate nonphysical) particulars, or (b) that the awareness of pains be the awareness of subjective "sense-contents" that are not identical with anything in the physical world. My aim in the paper is to show that these obstacles are merely

The standard perceptualist and representationalist way of making sense of our practices of attributing pains to bodily parts is to reinterpret the logical structure of first-person judgments when one locates a pain in one's body. So suppose that I truly judge now that

(1) I feel pain in my elbow.

What makes this true, according to PRT, is not, as one would normally have expected, that

(2) I stand in some perceptual relation to some objective condition (D) of my elbow,

but rather it is the fact that

(3) I am having an experience with the intentional content that

(3a) some D is occurring in my elbow.<sup>7</sup>

Note that if, when I judge (1) I am in fact judging (3) and that this is typical, as PRT says, then my ordinary pain attributing judgments are introspective judgments. By contrast, on the natural reading of (2), it is made true in virtue of obtaining a perceptual relation between me and the physical condition (D) of my elbow. In other words, PRT denies that when I truly judge (1), *I* am making an attribution *to my elbow* — an attribution of pain, or even D, for that matter. On PRT, no such attributions are being made: instead, I attribute an experience *to myself* with a certain intentional content. On PRT, whether or not this content (3a) is true is irrelevant to the correctness of my introspective judgment.

Another way to put the PRT proposal is this. Suppose (1) is merely true, whether or not I judge or happen to think (1). Then what makes (1) true is the mere fact that I have a pain experience, which, according to PRT, is in fact perceptual in that it (non-conceptually) represents my elbow as something physically wrong with it — as having D. For brevity, in case (1) is true, I am undergoing a perceptual experience *as of* D in my elbow. This experience, according to PRT, may be a misperception or non-veridical if my elbow has nothing physically wrong with it. So we may have genuine pain experiences that are hallucinatory in this respect. So far so good: the case seems parallel to genuine perception like vision. But according to PRT, this perceptual experience never gives rise to perceptual judgments about D. Our pain attributing beliefs and judgments formed on the basis of these pain experiences are never directly (*de re*) about D's being instantiated in a body part: they always report the experience itself. It is puzzling why the defenders of PRT think that pain experiences are perceptual when these experiences always give rise to introspective judgments, and never to perceptual judgments. This is in stark contrast to genuinely perceptual experiences like seeing an apple in

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illusory, and there are no features of pains that force on us the mental-particulars view of pain. So although my attack on [this view] is only indirect, I nevertheless regard it as lethal" (Pitcher 1970: 369). Frank Jackson (1977), on the other hand, happily embraces a non-naturalist sense-datum theory.

<sup>7</sup> The content (3a) would be more correctly expressed with a referential expression such as "this [part of the body] is [undergoing] D" — see below.

front of me as round: these typically give rise to *de re* perceptual judgments such as "this is round," which may be true or false depending on what the actual objective facts are with the apple. In other words, the epistemic value of genuinely perceptual experiences is typically transferred to the perceptual judgments they normally give rise to.<sup>8</sup>

The puzzle PRT generates, then, is that if pain experiences are perceptual, we never seem to think of their objects as perceptual objects, i.e., extra-mental objects (D), that we perceive through these experiences. As a matter of course, we treat both the objects of these experiences (pains in body parts) and the experiences themselves as mind-dependent, hence, not as extra-mental objects of perception (in the narrow sense). If pain experiences were genuinely perceptual, they would normally give rise to *de re* judgments about their (extra-mental) objects as such (this is what happens in all genuinely perceptual experiences). But we never see that! It becomes puzzling why perceptual theorists insist that the pain experiences are nevertheless perceptual.<sup>9</sup>

There are further difficulties with PRT: the proposed analysis of pain attributing judgments, intuitively, doesn't capture the phenomenological import of these first-person introspective judgments. When I am sensorially aware of a sharp pain in my elbow, intuitively, I seem to be presented with an essentially phenomenal item or quality somehow instantiated in my elbow. Otherwise, why resist identifying this quality with anything physical that may be instantiated in my elbow? But it is precisely this phenomenal presence that gets lost in the proposed analysis by PRT. Recall that, on this view, my introspective report about my awareness of this pain is simply a report of an experience as of some sort of physical disturbance (D) in my elbow. But when I attribute pain to my elbow, as a matter of fact, like everybody else, I both mean to literally locate pain in my elbow and resist identifying this pain with any physical condition of my elbow. In fact, I mean more: I mean this pain to be awareness dependent. Hence, I positively conceive of this pain in my elbow as a mind-dependent presence. But if PRT is true, I am massively confused in what I mean, indeed, in what I *can* mean — not just me, of course, pretty much *everybody* is so confused. This doesn't seem right.

In light of this, I think that PRT should be rejected: pain experiences are not perceptual. In fact, I am inclined to believe, they are not *fully* representational either. Rejecting PRT doesn't, of course, commit one to deny the obvious, namely, the mundane observation that

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<sup>8</sup> See Aydede (2009b) for a more detailed elaboration of this line of criticism.

<sup>9</sup> Surprisingly, to the best of my knowledge, no perceptualists have ever addressed this problem. Here is another way to state the problem. A perceptualist who claims that pains in bodily locations (L) *are* physical disturbances in those locations should explain why the truth-values of the following two extensional sentences sometimes come apart: (a) 'there is pain in L,' (b) 'there is disturbance in L,' if pain in L = disturbance in L. It's not clear, on what non-question begging grounds, perceptualists who take this line can stipulate away that they never come apart. Try to explain to a patient with a heart condition who claims to feel pain in his left arm that he is dead wrong — that there is in fact no pain in his left arm that he feels — and see what happens... A doctor may correctly say, of course, that he has no disturbance in his left arm, but not that he has no pain in his arm. An empirically adequate model of pain should shed light on this fact, not stipulate it away as merely confused ways of talking. See my proposal below.

feeling pain in a body part often conveys very useful, sometimes crucial, information about the physical condition of that part and allows one to be immediately motivated in appropriate ways to act to protect one's body. This observation is a truism and not in dispute, but the view that feeling pain in a body part is a perceptual experience with a representational content is a *recent* development by historical standards: up until the early 1960's, it had been (almost) unheard of. In fact, arguably the contemporary silent majority may still not be friendly to such a view.<sup>10</sup>

It was David Armstrong and George Pitcher in the 60's and 70's who proposed the perceptualist view of pains and other "intransitive" bodily sensations such as itches, tickles, tingles, orgasms, etc.<sup>11</sup> Unsurprisingly, this was in accordance with their naturalist (materialist) program in philosophy of perception and mind. We noted above the difficulty of making naturalistic sense of (P) which is about pains. But exactly the same puzzles remain for other intransitive bodily sensations, of course. The traditional anti-PRT view had taken (P) for granted and didn't worry much about its alleged non-naturalistic metaphysical implications: most were at home with dualism, idealism, sense-datum theories, indeed with any form of non-materialism. Thanks to the likes of Armstrong, Pitchers and other pioneers, most of us these days do, and ought to, worry about the alleged non-naturalistic metaphysical implications of our views and seek ways to address them.

By rejecting PRT,<sup>12</sup> we will be returning to the historically dominant view of pains as bodily sensations that sets them apart from genuinely perceptual experiences involved in standard perceptual modalities. If we reject PRT, however, can we make sense of (P) without succumbing into metaphysical abyss? Here is a rough outline of a naturalist proposal that

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<sup>10</sup> See for instance, Colin McGinn (among many others): "... bodily sensations do not have an intentional object in the way that perceptual experiences do. We distinguish between a visual experience and what it is an experience of; but we do not make this distinction in respect of pains. Or again, visual experiences represent the world as being a certain way, but pains have no such representational content" (McGinn, 1982: 8). For many other references for endorsement of the traditional view, see Bain (2003: 502). To be sure, since antiquity, many thinkers (including Galen and Avicenna) regarded pain as informative of tissue disturbance. They talked of pains as typically *caused* by such and such disturbances, or as *signs* of damage or illness, and studied or used them in the service of proper diagnosis and prognosis. (See Rey 1995; Cohen 2007) But this is not necessarily to hold a perceptualist view of pain. As said, any non-perceptualist would acknowledge the informative role of pain.

<sup>11</sup> Armstrong (1962, 1968), Pitcher (1970, 1971). There were others, to be sure — see my (2009a) for a more detailed history. Pitcher was quite aware about how his perceptualist view would be received: "I shall defend the general thesis that to feel, or to have, a pain, is to engage in a form of sense perception, that when a person has a pain, he is perceiving something. This perceptual view of pain will strike many as bizarre. But sense-datum theorists, at least, ought not to find anything at all odd in it: indeed, I am puzzled why philosophers of that school do not subscribe to the perceptual view of pain *as a matter of course*. Since I am not a sense-datum theorist, however, but a direct realist, I espouse what must at first appear to be an irremediably perverse position — namely, a direct realist version of the perceptual view of pain." (Pitcher 1970: 368) There is much to be said, of course, why the sense-datum theorists didn't hold a perceptual view of pain — see Aydede (2009a).

<sup>12</sup> And ignoring a few other options such as Colin Klein's imperativism (2015) and other purely motivational theories of pain (see also Chapter 8 in this volume). However, I am increasingly inclined to think that Klein's imperativism can be seen as a notational variant of PRT — see Aydede (in prep).



comports well with the core traditional understanding of pains as both locatable items and subjective experiences. The proposal is weakly intentionalist, qualia-friendly, but fully naturalist, which has close affinities with adverbialism in philosophy of perception.<sup>13</sup>

Pains are sensory and affective experiences. I will focus on the sensory aspect in what follows. I will start with the assumption that sensory experiences have an intentional structure in that they have both a referential and a predicative structure. This is to say that these experiences have a structure that picks out particulars in space-time and then *typically* attributes features, properties, or relations to these particulars. The picking out bit is referential, and the property attribution is handled by the predicates proprietary to the sensory modality, probably structured according to the organization of the sensory quality space for that modality.<sup>14</sup>

As an analogy, think of a paper marine chart of a certain lake. The points or regions on the paper chart as fixed by the horizontal/vertical coordinates of the chart will pick out or refer to actual points or regions on the lake. This is the referential aspect. What colors, lines, or marks there are on those points or regions of the paper chart will then tell us what oceanographic or geographic properties (e.g. depth, currents rates or directions, submerged rocks, etc.) are true of the corresponding places on the lake. Here we have a representational vehicle (the paper chart) with a syntactic structure roughly corresponding to referential and predicative functions. The claim is that sensory experiences as intentional structures have a similar referential/predicative divide. Despite the presence of a predicative structure, however, the representational format of sensory experiences is not conceptual, similar to the way the chart is *not* a discursive or sentential representation.

Presumably, in the case of pains, the *referential* structure of the experience is physiologically realized by a body map or a map-like representation (a somatotopically organized body schema, perhaps) whose referring elements pick out or refer to points or regions in one's somatosensory field — to body parts. But the "properties"<sup>15</sup> that are placed in or attributed to the regions picked out by these referential elements are handled by the sensory *predicates* involved in pain processing. The qualitative phenomenology of sensory experiences is determined by the predicative structure of these experiences.<sup>16</sup>

Pain experiences just like other sensory experiences feed into a conceptual system wherein introspective and perceptual *judgments* are made based on these experiences. I claim that the judgments made in locating pains in bodily locations track what sensory predicates are deployed, and not what sensible properties/conditions, if any, are thereby attributed to these locations by these predicates. Thus, whatever property (if any) is attributed to bodily locations,

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<sup>13</sup> For more details, see my (forthcoming-b).

<sup>14</sup> The quality space for pain may not be completely proprietary to pain — it may overlap with that of touch and perhaps other connected modalities such as proprioception. This is largely an empirical issue better left open. For the notion of the quality space for sensory modalities and the science behind it, see Clark (1996, 2000).

<sup>15</sup> The reasons for scare quotes will be clear shortly below.

<sup>16</sup> Plus affect — to be handled as further (second-order) adverbial modification of the instantiations of sensory predicates. See Aydede (2014, forthcoming-a) for details.

our judgments are about the *ways* these properties are experienced or sensorially registered — they are not about the *properties* these ways may attribute. Because these ways are *ways* in which certain "properties" are sensorially attributed to extra-mental particulars (bodily locations), we cannot help but attend to these *ways* except by attending to the locations (picked out by the referential elements) instantiating these properties. These *ways* are the phenomenal qualities of our experiences, whose knowledge is thus knowledge of the *ways* in which certain "properties" or conditions are sensorially attributed to body parts.<sup>17</sup> Thus when I judge I have a pain in my elbow, my judgment is correct in virtue of my undergoing a pain experience attributing a "property" to my finger in a certain way. My judgment thus correctly reports an experience — it is an introspective judgment.

What is the property (or range of properties/conditions) that seems to be attributed by my experience? In genuinely perceptual modalities, the predicative structure of sensory experiences attribute sensible properties to physical objects. These are often complex but objective (physical) features or conditions of extra-mental objects that we sense, such as colors, chemical constitution, surface textures, temperature, pressure, etc. In the case of pain experiences, unlike a perceptualist or representationalist, we are not theoretically constrained about what these attributed properties ought to be. In fact, we may *legitimately* draw a blank — just as the folk and scientists do. But there are various options. I will first mention a conciliatory option, and then, briefly explore the option I am more attracted to.

One option about what the attributed properties might be is to follow representationalists by identifying them with some sort of physical disturbance (D). If we do this, our pain-attributing *judgments* (analyzed as introspective judgments about experiences with a certain intentional content) would still come out as correct, as desired, but our *experiences* now may *not* be veridical. I may correctly report pain in my elbow when in fact there is nothing physically wrong with it and my pain is a referred pain due to a pinched nerve in my upper spine. My pain *experience* would thus be illusory but my pain *judgment* would still be correct. I suppose we can live with this result — even though, as I have argued, the lack of relevant *de re* perceptual judgments would make these experiences not perceptual. This is a non-perceptualist weak representationalist position that allows for widespread non-veridical experiences to be still genuine pain experiences. Although we can live with this, I don't find this option very

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<sup>17</sup> In genuinely perceptual cases, these *ways* are ways of sensing the sensible properties in the natural environment (realized by the deployment of sensory predicates) and need to be explicated within a qualia-friendly adverbialist framework. Introspective judgments about sensory experiences track what predicates are activated, but introspective mechanisms don't have their own referential devices singularly picking out these activations. This explains the so-called transparency of sensory experiences. If we want to introspectively focus on the phenomenal qualities of our experiences, our focus seems to go right through our experiences to the extra-mental particulars that are the objects of these experiences and have the properties attributed by these qualities/predicates. Our introspective judgments are thus about the experiential *ways* in which extra-mental particulars are represented as being (as having certain properties) without singularly referring to these ways. See Aydede (forthcoming-b) for more details, and Aydede & Güzeldere (2005) for the dual informational structure of sensory/phenomenal concepts (predicates used in perceptual and introspective *judgments* and acquired directly from sensory experiences).

satisfying. Furthermore, as complained before, the proposed analysis of introspective judgments doesn't do justice to the pain phenomenology and the conception of pains as occurring in body parts.

On the second option, pain experiences are not fully representational because there are no genuine property attributions made despite successful reference. The "properties" that the sensory predicates involved in pain experiences attribute to body parts are *mental* in the following sense: a body part has pain in it just in case it is the intentional target of a sensory predicate predicating a dummy property to that location — it is the inverse intentional property of being the target of a sensory predicate *being used with respect to a referential position* in the sensory experience that in fact picks out that target. In other words, as long as sensory reference succeeds, the reference is guaranteed to have the mental/intentional property insofar as the system does a predication with respect to that reference. Accordingly, the metaphysics of pain experiences consists of sensory representations making dummy property attributions to bodily parts. We can then distinguish between informative pains, referred pains, and phantom limb pains.

*Informative pains* are those when the predication actually signals or indicates actual or impending physical disturbance/damage (D) at the location to which reference is successfully being made. Correlations between physical disturbances and firing of a predicate have been claimed to be fairly poor — but perhaps when the channel conditions are right, there is information flow after all, even though this may not be enough for genuine *representation*.

*Referred pains* are those in which reference is successfully made to actual body parts with respect to which a predicate is *causally activated* by some disturbance in some other part of the body, but the activation does not *indicate* disturbance in the part of the body to which the reference is actually being made — perhaps because the channel conditions are not right.

*Phantom limb pains* are those where attempted reference to a body part fails but with respect to which a sensory predicate is activated.

If the "property" attributed to body parts is *mental* in this sense, then there are no representational mistakes anywhere in the intentional nociceptive system. Our pain experiences are intentional because there is either successful or failed reference. But the pain experiences do not make genuine property attributions to bodily locations — so they do not have full veridicality conditions. Thus they are not *fully* representational.<sup>18</sup> However, our *judgments* prompted by them are correct in intuitively the right way. These judgments usually correctly locate the mental properties in those bodily regions (pains in body parts), when the relevant

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<sup>18</sup> Consider an apprentice among alchemists in the pre-modern world pointing to the vapor coming out of boiling water. He utters, "this is phlogiston." Given my Russellianism and the fact that there is no property of being phlogiston, the apprentice is not making a genuine property attribution — although his reference is successful. But although his utterance is not strictly speaking true or false, there are nevertheless appropriateness or suitability conditions to his utterance that are not satisfied in this particular case. And that is what would be pointed out to him when his tutors point out his "mistake" — this description is of course from the perspective of a semanticist. Pain experiences, on the option I am exploring now, are like this utterance. We might say that they do not make *genuine property* attributions, or we might say that they do not *genuinely make* property attributions — either way, they are not fully representational.

mental properties are understood in the above way. When I correctly report a pain in my elbow, I am introspectively reporting pain (a certain phenomenal quality) as literally being in my elbow. For my elbow is the intentional target of a sensory predicate being used with respect to a referential position that picks out my elbow. Although my introspective *judgments* fully represent the instantiation of such mental properties in my body parts or regions, these mental properties are not represented by the pain *experiences* themselves; as said, pain experiences, although intentional (*de re* reference), are not fully representational (no genuine property attribution generating accuracy conditions). Folk and the pain scientists (including clinicians) do routinely attribute pains and other sensations to bodily locations after all — come to think of it: *sensations* (paradigmatic mental episodes) in body parts! This story about how to account for the pain qualities attributed to body parts explains how to make sense of such practices.<sup>19</sup>

The above proposal, especially with the second option in mind, needs to be supplemented with an account of introspection and the role of affect in pain experiences.<sup>20</sup> The proposal assumes a largely intentionalist framework in helping itself to its representational resources along with its syntactic apparatus. The assumption is that such a framework is fully realizable in purely physical systems, thus fully naturalistic. No doubt, in philosophy (and in cognitive science at large) there is a sense of optimism that in the last 50 years or so we have made progress in understanding intentional systems (natural or artificial) in mechanistic/computational terms systematically interacting with their natural or engineered environments. My proposal builds on these naturalistic foundations.<sup>21</sup>

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<sup>19</sup> Note that this is not a form of projectivism — there are no representational mistakes anywhere in the system. One robust mark of projectivism is that it makes experiences under consideration and our judgments based on them massively illusory or somehow mistaken.

<sup>20</sup> Projects I take up elsewhere (Aydede & Güzeldere 2005; Aydede 2014; Aydede forthcoming-a/b).

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